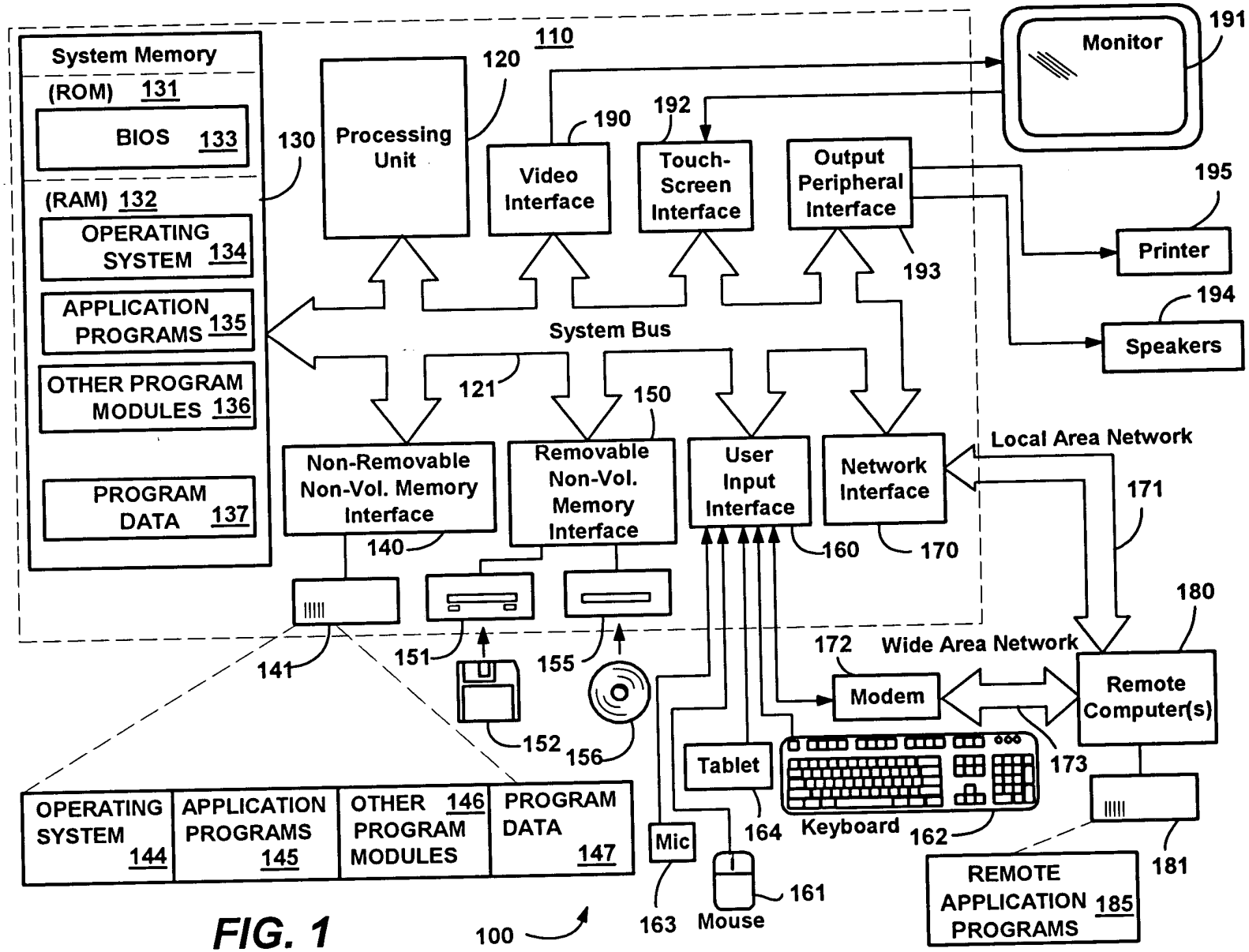
System Memory
(ROM) 131
BIOS 133
(RAM) 132
OPERATING SYSTEM 134
APPLICATION PROGRAMS 135
OTHER PROGRAM MODULES 136
PROGRAM DATA 137
130
110
Processing Unit
120
Video Interface
190
Touch-Screen Interface
192
Output Peripheral Interface
193
Monitor
191
Printer
195
Speakers
194
System Bus
121
150
Non-Removable Non-Vol. Memory Interface
140
Removable Non-Vol. Memory Interface
User Input Interface
160
Network Interface
170
Local Area Network
171
141
151
155
152
156
172
Wide Area Network
Modem
180
Remote Computer(s)
173
Tablet
164
Keyboard
162
Mic
163
Mouse
161
181
REMOTE APPLICATION PROGRAMS 185
OPERATING SYSTEM 144
APPLICATION PROGRAMS 145
OTHER PROGRAM MODULES 146
PROGRAM DATA 147
100

FIG. 1

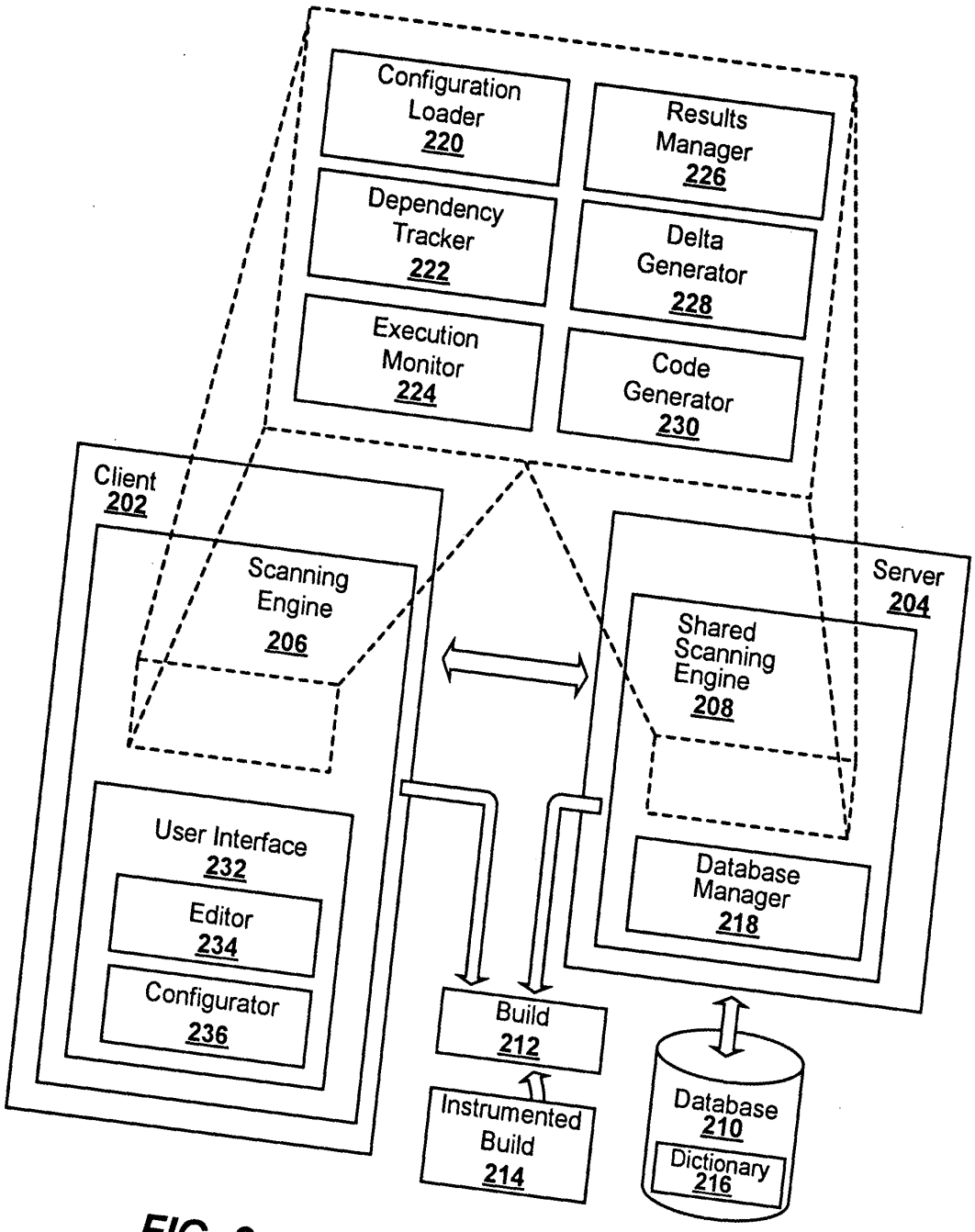
Configuration Loader 220
Results Manager 226
Dependency Tracker 222
Delta Generator 228
Execution Monitor 224
Code Generator 230
Client 202
Scanning Engine 206
User Interface 232
Editor 234
Configurator 236
Server 204
Shared Scanning Engine 208
Database Manager 218
Build 212
Instrumented Build 214
Database 210
Dictionary 216

FIG. 2

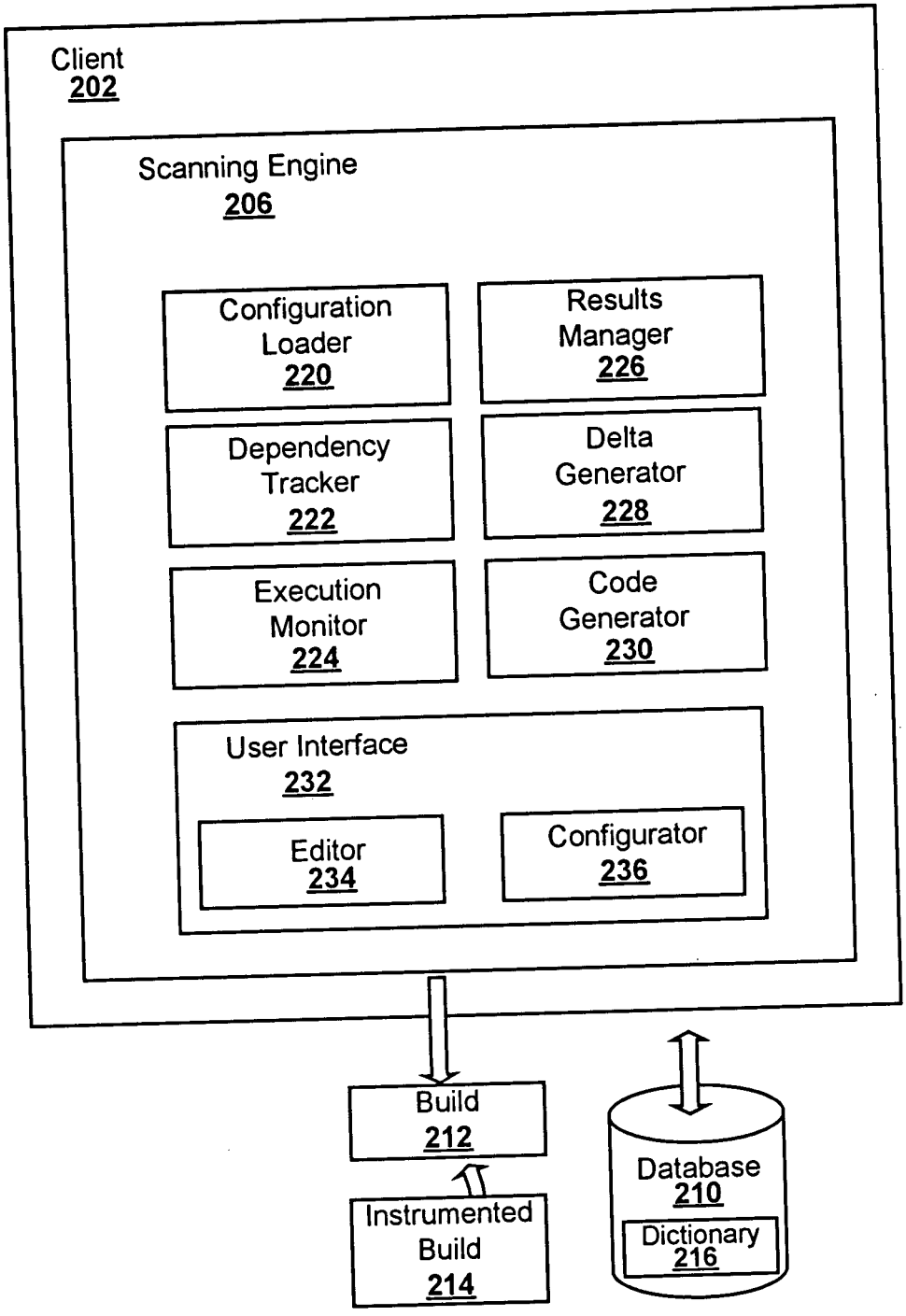
Client
202
Scanning Engine
206
Configuration Loader
220
Results Manager
226
Dependency Tracker
222
Delta Generator
228
Execution Monitor
224
Code Generator
230
User Interface
232
Editor
234
Configurator
236
Build
212
Instrumented Build
214
Database
210
Dictionary
216

FIG. 3

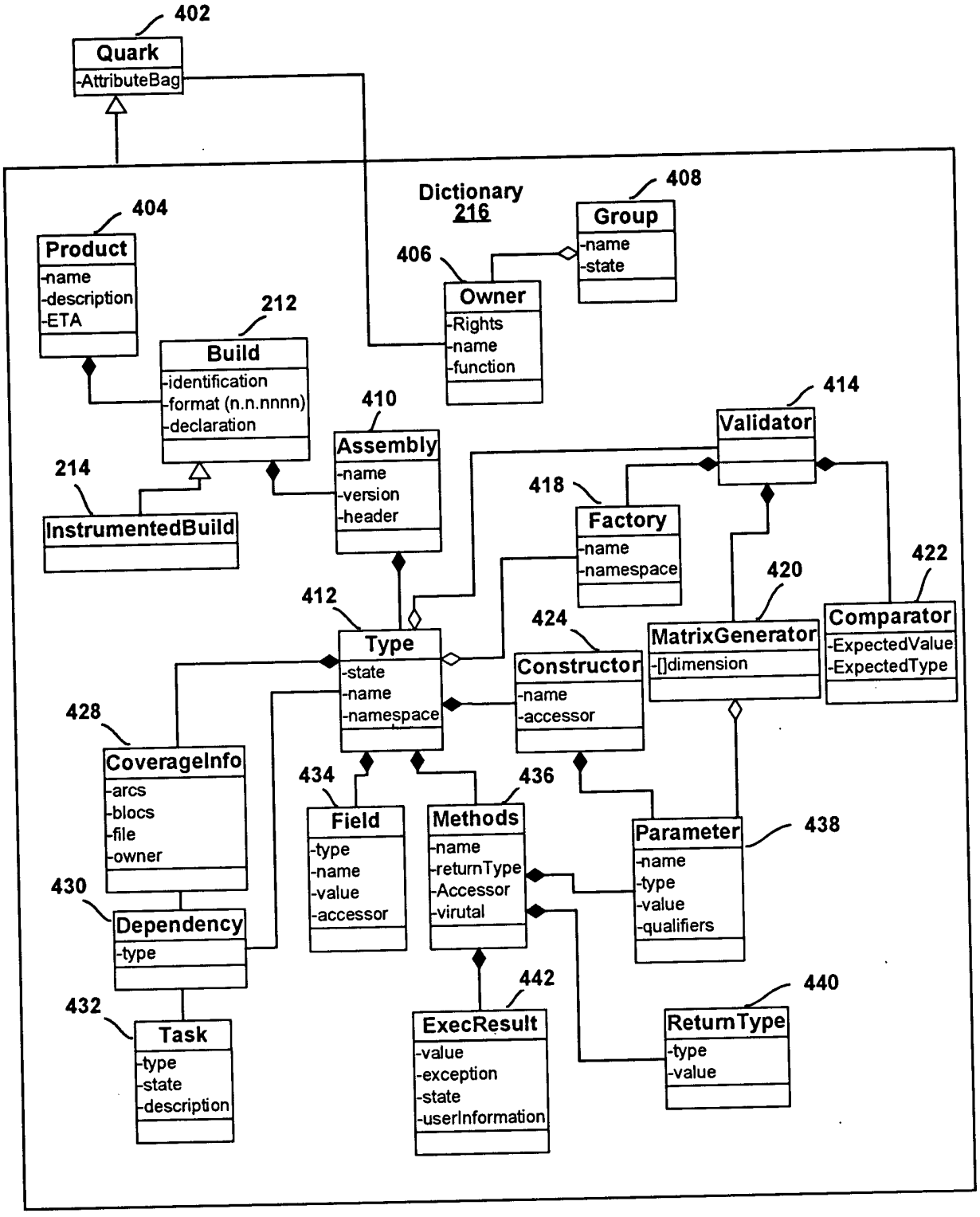
402
Quark
-AttributeBag
Dictionary
216
408
Group
-name
-state
404
Product
-name
-description
-ETA
406
Owner
-Rights
-name
-function
212
Build
-identification
-format (n.n.nnnn)
-declaration
410
Assembly
-name
-version
-header
414
Validator
214
InstrumentedBuild
418
Factory
-name
-namespace
422
420
412
Type
-state
-name
-namespace
424
Constructor
-name
-accessor
MatrixGenerator
-[]dimension
Comparator
-ExpectedValue
-ExpectedType
428
CoverageInfo
-arcs
-blocs
-file
-owner
434
Field
-type
-name
-value
-accessor
436
Methods
-name
-returnType
-Accessor
-virutal
Parameter
-name
-type
-value
-qualifiers
438
430
Dependency
-type
442
440
432
Task
-type
-state
-description
ExecResult
-value
-exception
-state
-userInformation
ReturnType
-type
-value

FIG. 4

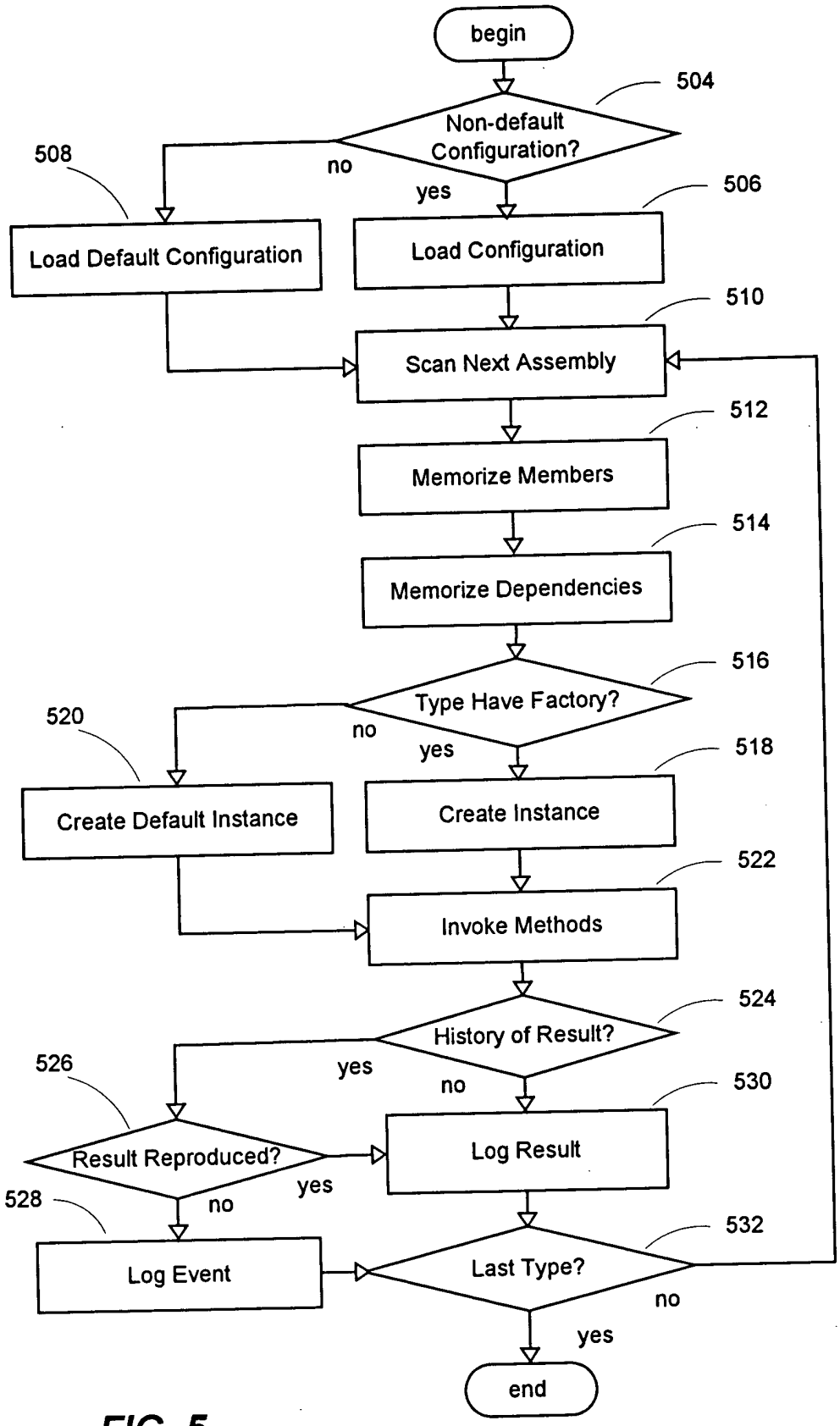
begin
504
Non-default Configuration?
no
yes
508
506
Load Default Configuration
Load Configuration
510
Scan Next Assembly
512
Memorize Members
514
Memorize Dependencies
516
Type Have Factory?
no
yes
520
518
Create Default Instance
Create Instance
522
Invoke Methods
524
History of Result?
yes
no
526
530
Result Reproduced?
Log Result
yes
no
528
532
Log Event
Last Type?
no
yes
end

FIG. 5

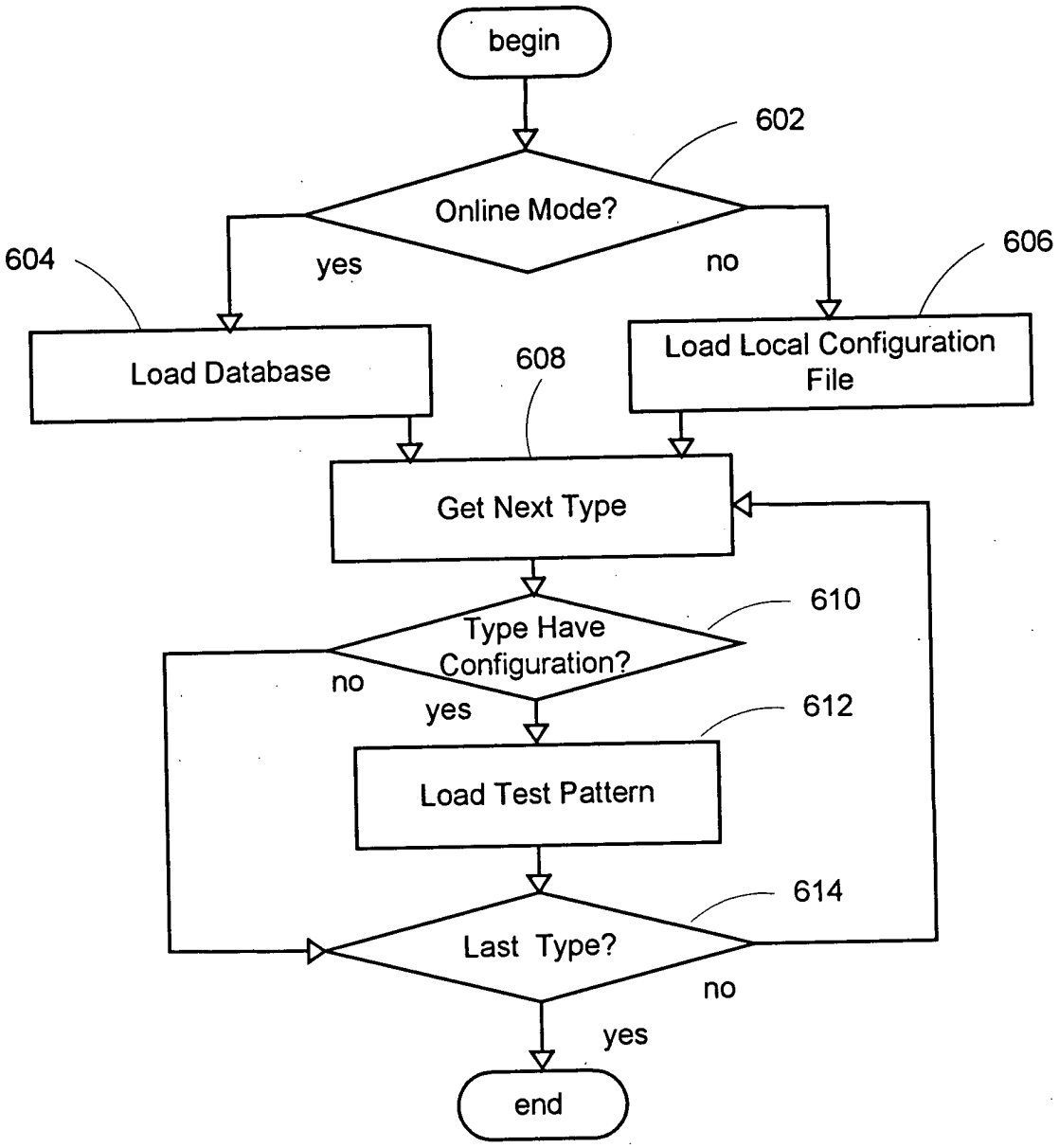
begin
602
Online Mode?
yes
no
604
606
Load Database
Load Local Configuration File
608
Get Next Type
610
Type Have Configuration?
no
yes
612
Load Test Pattern
614
Last Type?
no
yes
end

FIG. 6

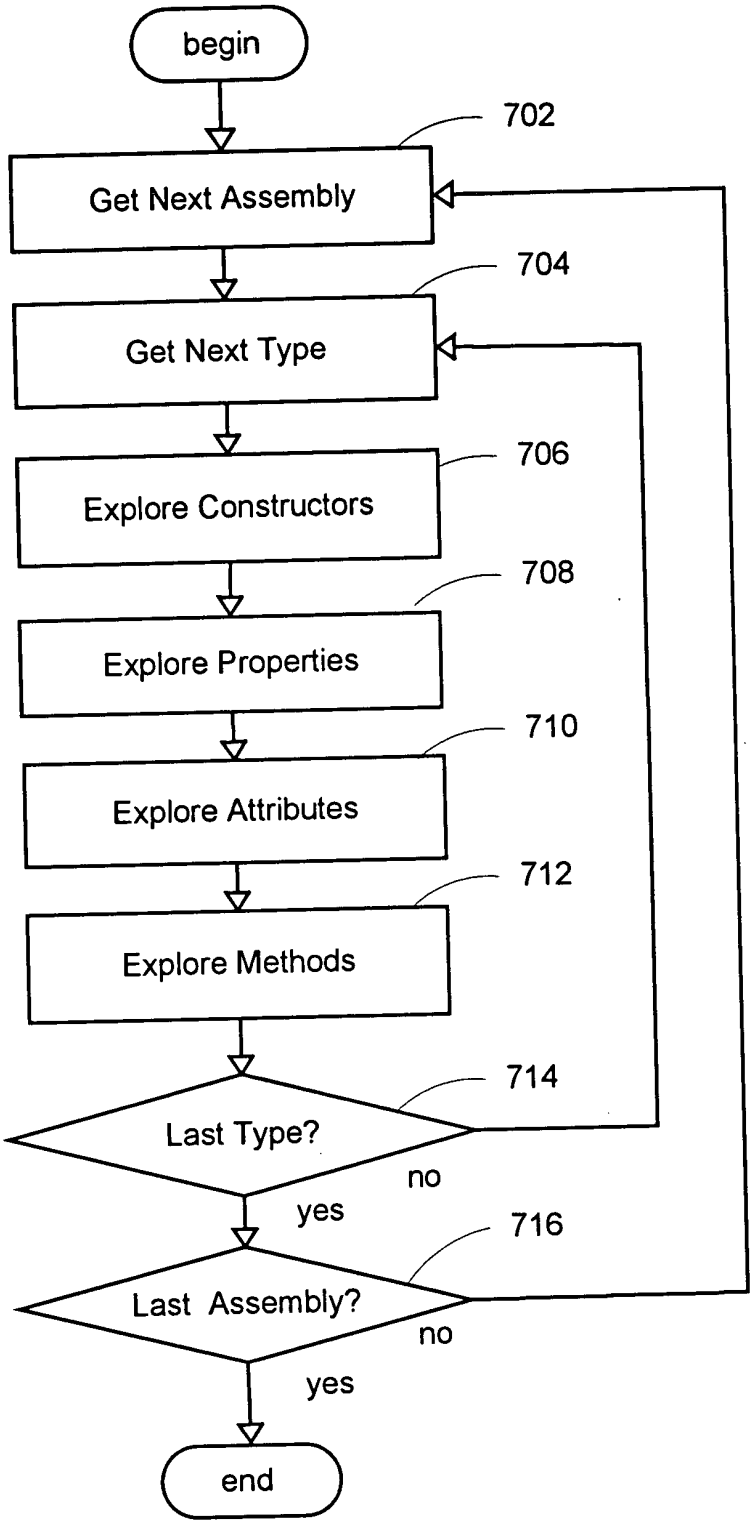
begin
702
Get Next Assembly
704
Get Next Type
706
Explore Constructors
708
Explore Properties
710
Explore Attributes
712
Explore Methods
714
Last Type?
no
yes
716
Last Assembly?
no
yes
end

FIG. 7

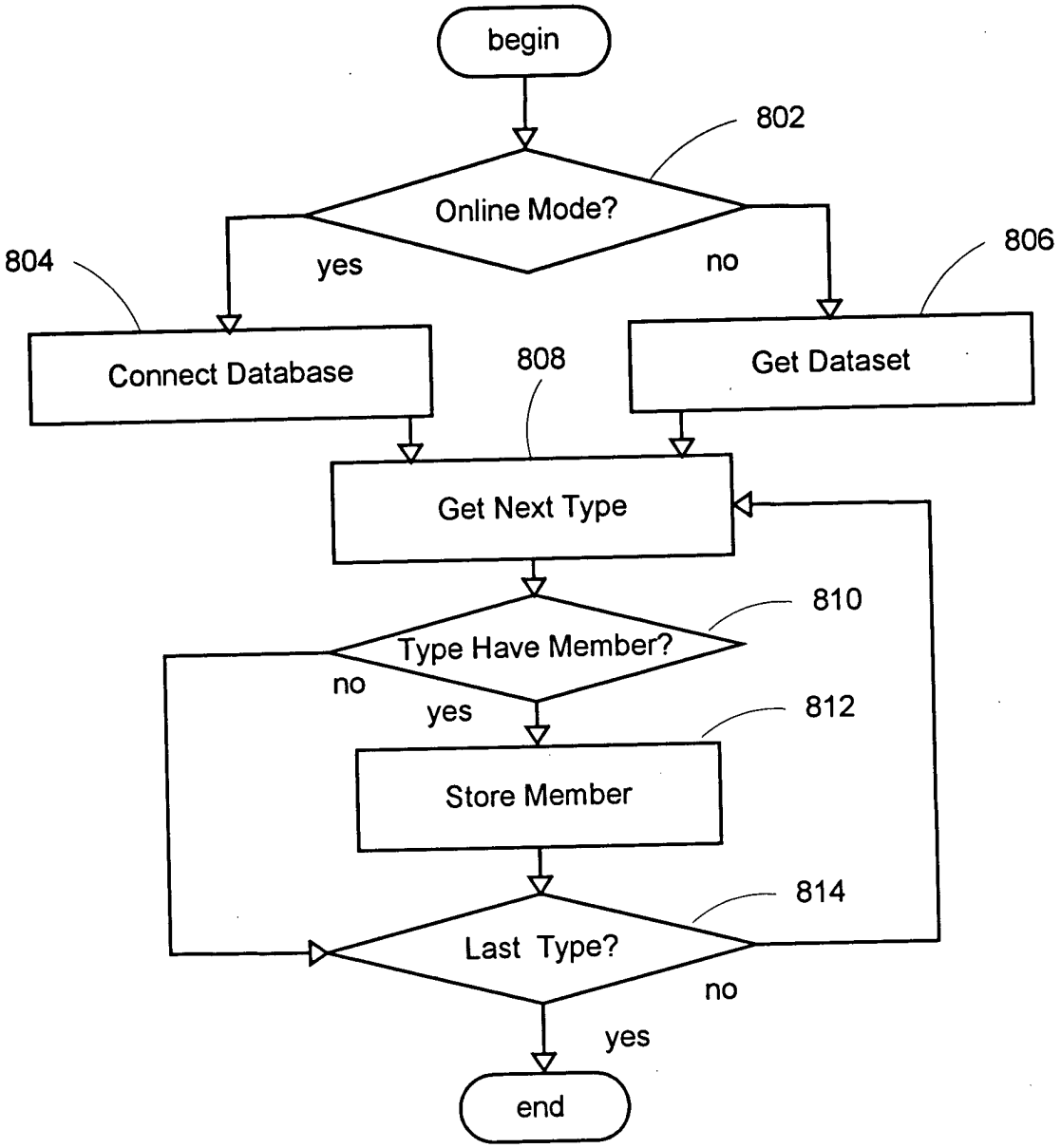
begin
802
Online Mode?
yes
no
804
806
Connect Database
808
Get Dataset
Get Next Type
810
Type Have Member?
no
yes
812
Store Member
814
Last Type?
no
yes
end

FIG. 8

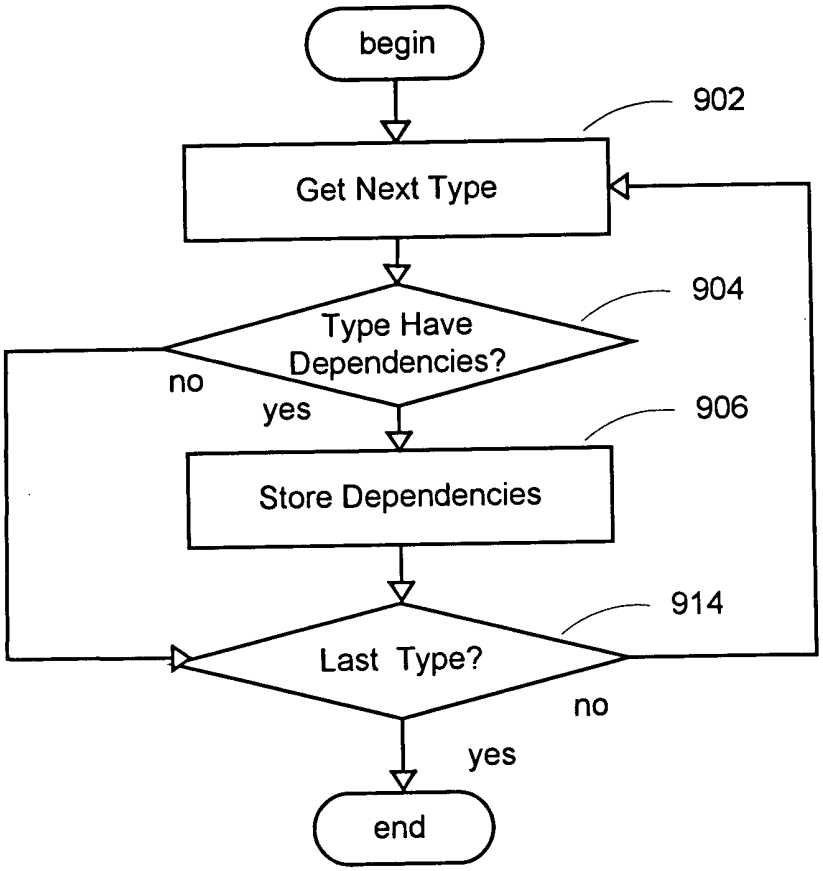
begin
902
Get Next Type
904
Type Have Dependencies?
no
yes
906
Store Dependencies
914
Last Type?
no
yes
end

FIG. 9

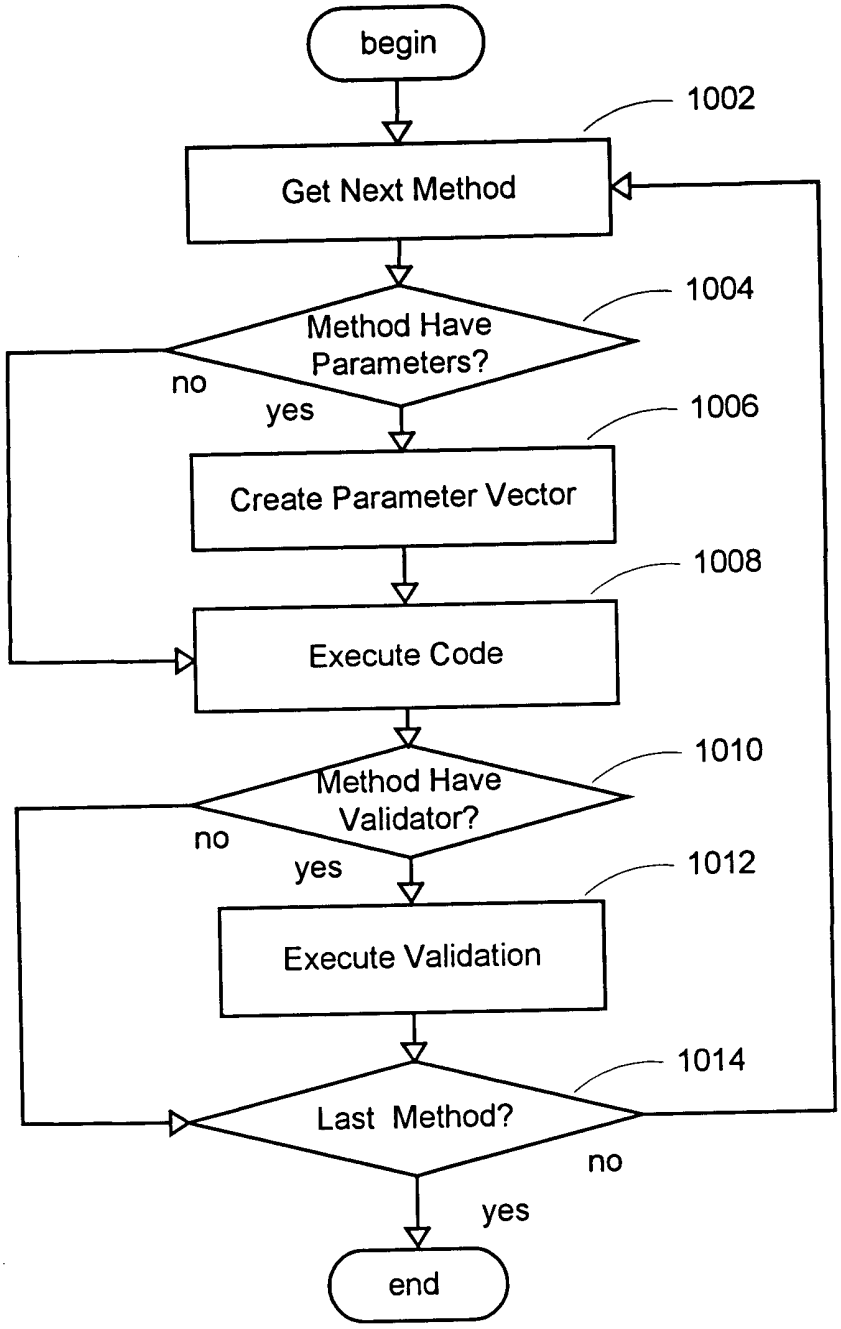
begin
1002
Get Next Method
1004
Method Have Parameters?
no
yes
1006
Create Parameter Vector
1008
Execute Code
1010
Method Have Validator?
no
yes
1012
Execute Validation
1014
Last Method?
no
yes
end

FIG. 10

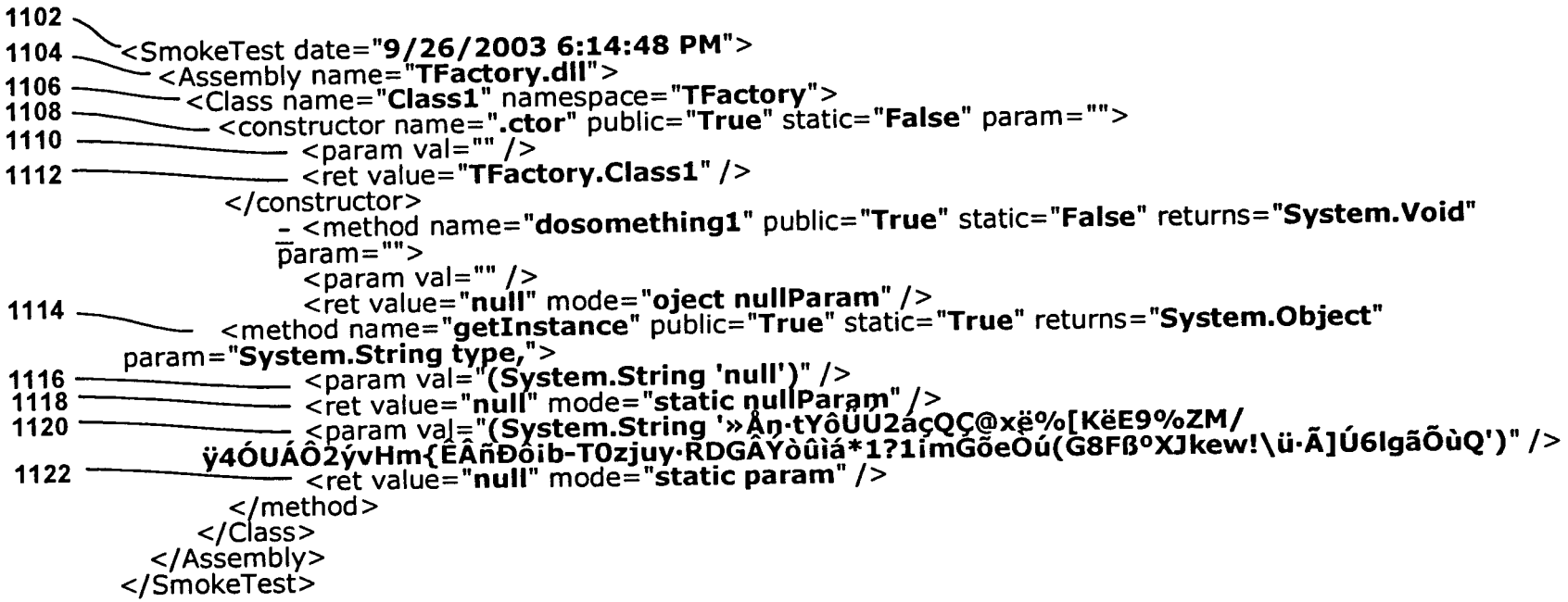
1102
1104
1106
1108
1110
1112
1114
1116
1118
1120
1122
<SmokeTest date="9/26/2003 6:14:48 PM">
<Assembly name="TFactory.dll">
<Class name="Class1" namespace="TFactory">
<constructor name=".ctor" public="True" static="False" param="">
<param val="" />
<ret value="TFactory.Class1" />
</constructor>
<method name="dosomething1" public="True" static="False" returns="System.Void"
param="">
<param val="" />
<ret value="null" mode="oject nullParam" />
<method name="getInstance" public="True" static="True" returns="System.Object"
param="System.String type,">
<param val="(System.String 'null')" />
<ret value="null" mode="static nullParam" />
<param val="(System.String '»Åŋ·tYôÜU2áçQÇ@xë%[KëE9%ZM/
ÿ4ÓUÁÔ2ývHm{ÊÂñÐôib-T0zjuy·RDGÂYòûiá*1?1ímGõeÓú(G8Fß°XJkew!\ü·Ã]Ú6lgãÕùQ')" />
<ret value="null" mode="static param" />
</method>
</Class>
</Assembly>
</SmokeTest>

FIG. 11

```
1202 <SmokeTest date="9/26/2003 6:14:48 PM">
1204   <Assembly name="TFactory.dll">
1206     <Class name="Class1" namespace="TFactory">
1208       <method name="dosomething1" public="True" static="False" returns="System.Void" param="">
1210         <param val="" />
1212         <ret value="null" mode="oject nullParam" />
```

FIG. 12

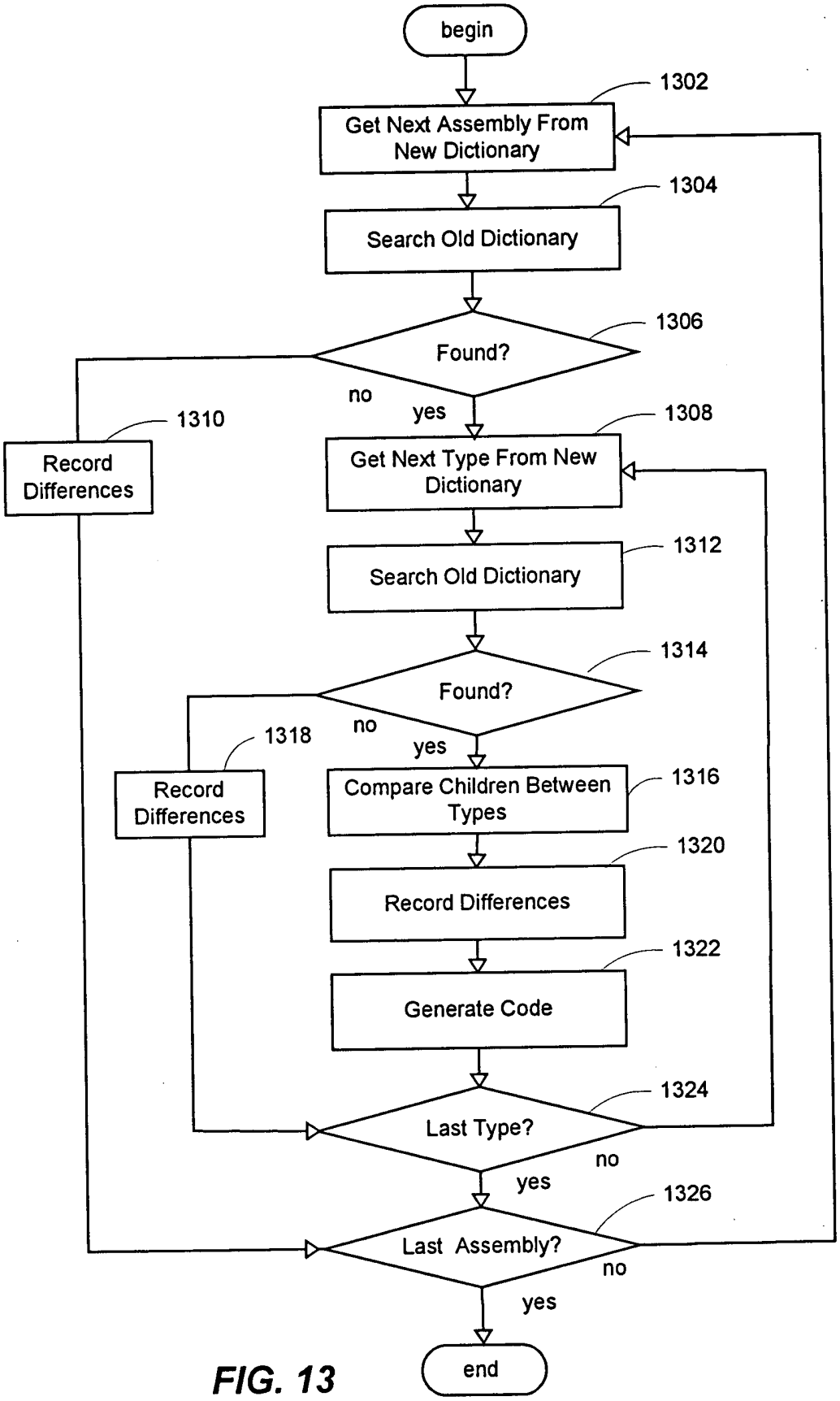
begin
1302
Get Next Assembly From New Dictionary
1304
Search Old Dictionary
1306
Found?
no
yes
1310
Record Differences
1308
Get Next Type From New Dictionary
1312
Search Old Dictionary
1314
Found?
no
yes
1318
Record Differences
1316
Compare Children Between Types
1320
Record Differences
1322
Generate Code
1324
Last Type?
no
yes
1326
Last Assembly?
no
yes
end

FIG. 13

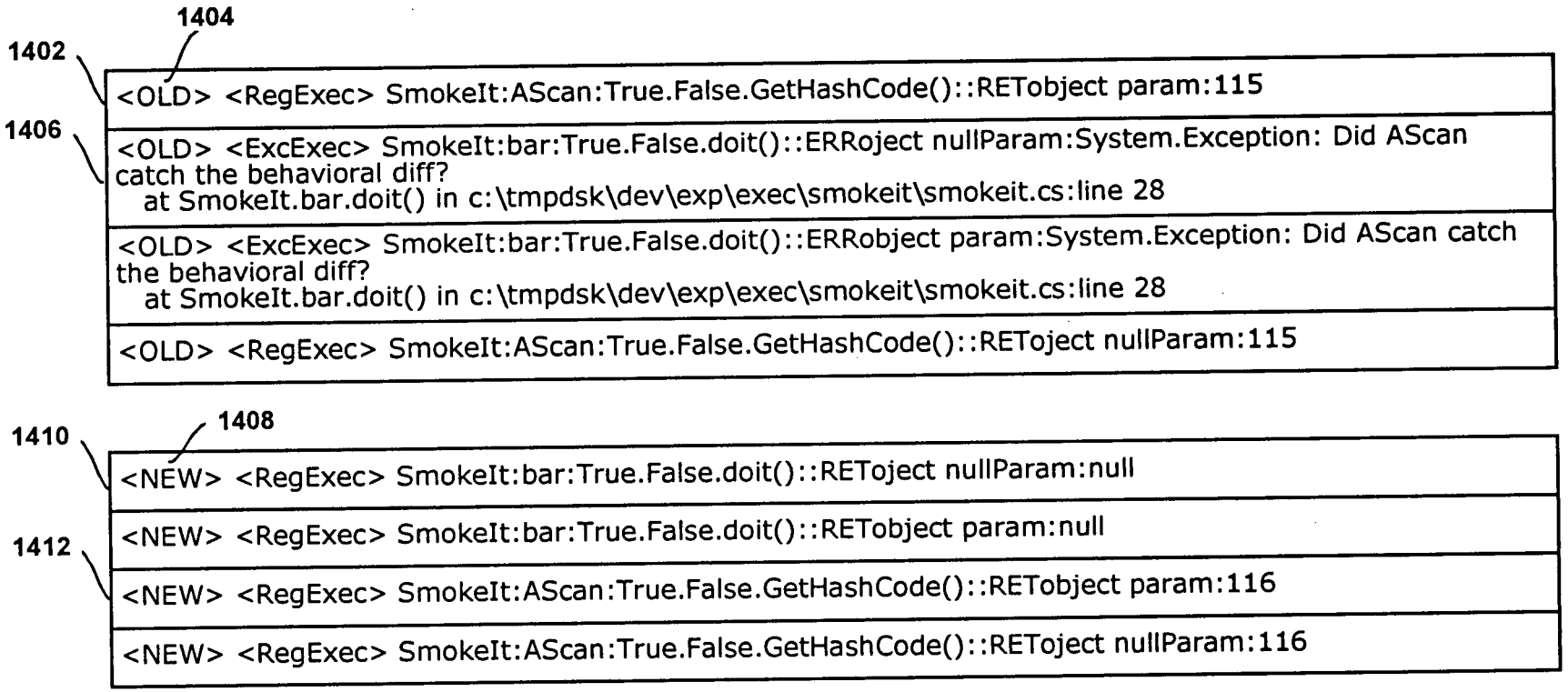
1404
1402
<OLD> <RegExec> SmokeIt:AScan:True.False.GetHashCode()::RETobject param:115
1406
<OLD> <ExcExec> SmokeIt:bar:True.False.doit()::ERRoject nullParam:System.Exception: Did AScan catch the behavioral diff?
at SmokeIt.bar.doit() in c:\tmpdsk\dev\exp\exec\smokeit\smokeit.cs:line 28
<OLD> <ExcExec> SmokeIt:bar:True.False.doit()::ERRobject param:System.Exception: Did AScan catch the behavioral diff?
at SmokeIt.bar.doit() in c:\tmpdsk\dev\exp\exec\smokeit\smokeit.cs:line 28
<OLD> <RegExec> SmokeIt:AScan:True.False.GetHashCode()::RETojject nullParam:115
1408
1410
<NEW> <RegExec> SmokeIt:bar:True.False.doit()::RETojject nullParam:null
1412
<NEW> <RegExec> SmokeIt:bar:True.False.doit()::RETobject param:null
<NEW> <RegExec> SmokeIt:AScan:True.False.GetHashCode()::RETobject param:116
<NEW> <RegExec> SmokeIt:AScan:True.False.GetHashCode()::RETojject nullParam:116

FIG. 14

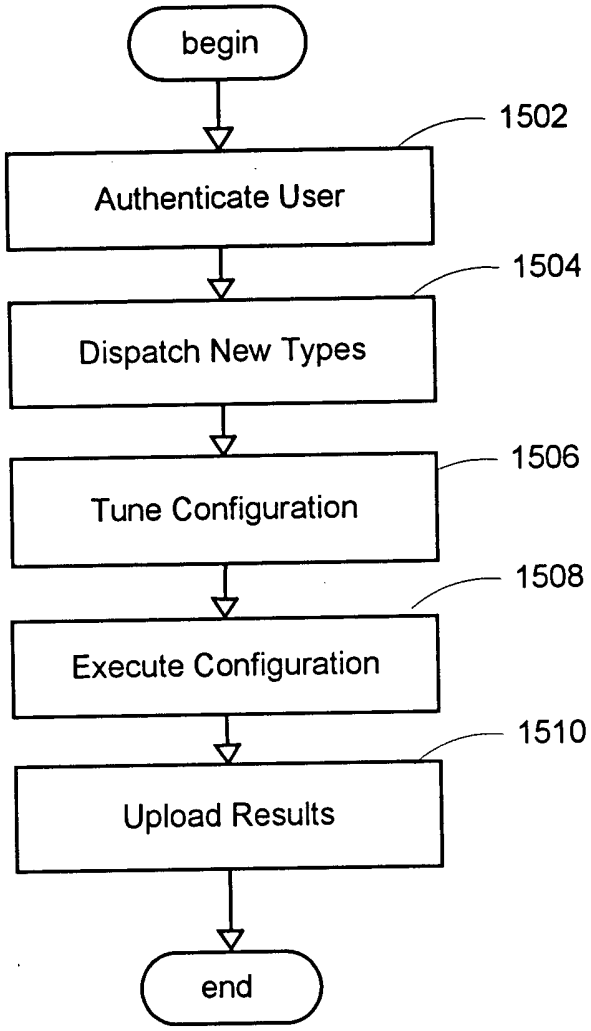
begin
1502
Authenticate User
1504
Dispatch New Types
1506
Tune Configuration
1508
Execute Configuration
1510
Upload Results
end

FIG. 15

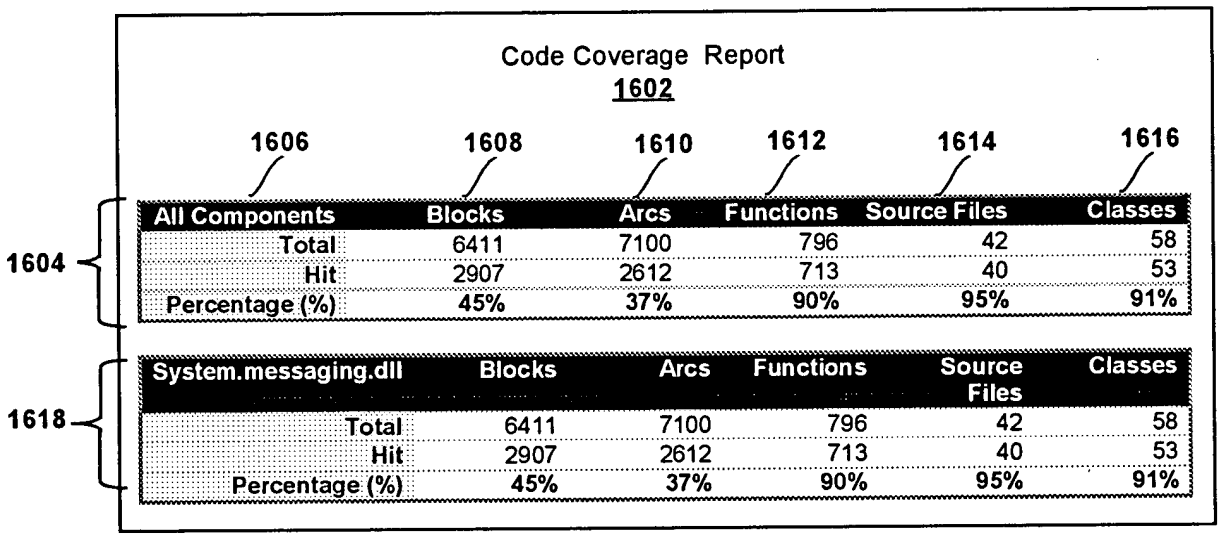
Code Coverage Report
1602
1606
1608
1610
1612
1614
1616
1604
All Components Blocks Arcs Functions Source Files Classes
Total 6411 7100 796 42 58
Hit 2907 2612 713 40 53
Percentage (%) 45% 37% 90% 95% 91%
1618
System.messaging.dll Blocks Arcs Functions Source Files Classes
Total 6411 7100 796 42 58
Hit 2907 2612 713 40 53
Percentage (%) 45% 37% 90% 95% 91%

FIG. 16

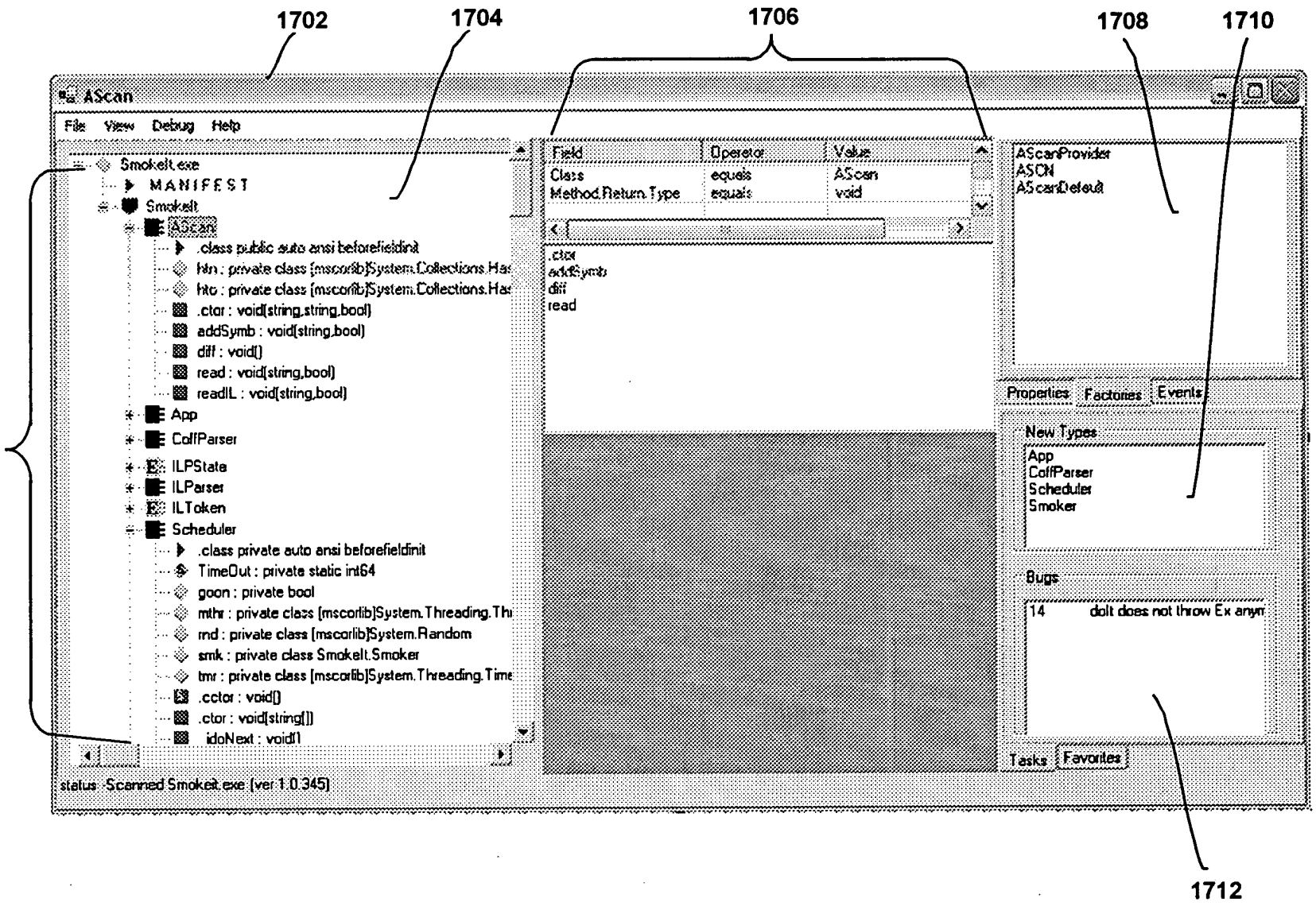
1702
1704
1706
1708
1710
1712
AScan
File View Debug Help
Smokelt.exe
MANIFEST
Smokelt
AScan
.class public auto ansi beforefieldinit
htn : private class [mscorlib]System.Collections.Has
hto : private class [mscorlib]System.Collections.Has
.ctor : void(string,string,bool)
addSymb : void(string,bool)
diff : void()
read : void(string,bool)
readIL : void(string,bool)
App
CoffParser
ILPState
ILParser
ILToken
Scheduler
.class private auto ansi beforefieldinit
TimeOut : private static int64
goon : private bool
mthr : private class [mscorlib]System.Threading.Thr
rnd : private class [mscorlib]System.Random
smk : private class Smokelt.Smoker
tmr : private class [mscorlib]System.Threading.Time
.cctor : void()
.ctor : void(string[])
idoNext : void()
Field
Operator
Value
Class
equals
AScan
Method.Return.Type
equals
void
.ctor
addSymb
diff
read
AScanProvider
ASCN
AScanDefault
Properties
Factories
Events
New Types
App
CoffParser
Scheduler
Smoker
Bugs
14
doIt does not throw Ex anym
Tasks
Favorites
status: Scanned Smokelt.exe (ver 1.0.345)

FIG. 17